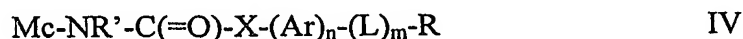


CLAIMS

1. A method of detecting protease activity in a sample solution comprising contacting
5 the sample solution with a protease substrate labelled with an electrochemically active marker, providing conditions under which any protease which may be present in the sample may degrade the protease substrate and electrochemically determining information relating to the electrochemically active marker.
- 10 2. A method as claimed in claim 1 wherein the information relating to the electrochemically active marker is obtained by voltammetry.
3. A method as claimed in claim 2 wherein the information relating to the electrochemically active marker is obtained by differential pulse voltammetry.
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4. A method as claimed in claim 1 wherein the information relating to the electrochemically active marker is obtained by an amperometric technique.
5. A method as claimed in any one of claims 1 to 4 wherein the information relating to
20 the electrochemically active marker is obtained by a technique that utilises one or more electrodes that are functionally surrounded by a selectively permeable membrane.
6. A method as claimed in any one of claims 1 to 5 wherein the electrochemically active marker is a metallocene moiety.
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7. A method as claimed in claim 6 wherein the electrochemically active marker is a ferrocene moiety.
8. A method as claimed in any one of claims 1 to 7 wherein the electrochemically
30 active marker is attached to the substrate through a linker.
9. A method as claimed in any one of claims 1 to 8 wherein each substrate molecule is, on average, labelled with more than one electrochemically active marker molecule.

10. A method as claimed in any one of claims 1 to 9 wherein the protease substrate labelled with an electrochemically active marker is a single amino acid labelled with an electrochemically active marker.
- 5 11. Use of a method as described in any one of claims 1 to 10 for detecting a disease in a subject.
12. Use of a method as described in any one of claims 1 to 10 for detecting a pathogen.
- 10 13. Use of a method as described in any one of claims 1 to 10 for screening for a protease inhibitor.
14. A protease or proteinase assay kit comprising a protease substrate labelled with an electrochemically active marker.
- 15 15. An apparatus arranged to carry out a method as described in any one or more of claims 1 to 10.
- 20 16. A compound of formula IV,



wherein

- 25 - Mc is a metallocenyl group in which each ring may independently be substituted or unsubstituted,
- the metallocenyl group comprises a metal ion M selected from the group consisting of iron, chromium, cobalt, osmium, ruthenium, nickel and titanium,
- R' is H or lower alkyl,
- 30 - X is either NR' or O,
- Ar is a substituted or unsubstituted aryl group,
- n is 0 or 1,
- L is a linker group,

- 37 -

- m is 0 or 1, and
- R is a protein, peptide or amino acid residue.

17. A compound comprising a metallocenyl group attached to a carboxyl group of an
5 amino acid residue, peptide or protein.

18. A compound as claimed in claim 17 having formula V,



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wherein

- Mc is a metallocenyl group in which ring may be independently be substituted or unsubstituted
- the metallocenyl group comprises a metal ion M selected from the group consisting of
15 iron, chromium, cobalt, osmium, ruthenium, nickel and titanium
- n is 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12
- X is either NR' or O
- R' is H or lower alkyl, and
- R is a protein, peptide or amino acid residue.

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